



# UNITED STATES PATENT AND TRADEMARK OFFICE

4A

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/796,757

03/08/2004

Yifeng Wu

200311688-1

4369

22879

7590

06/22/2006

HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER

NGUYEN, LAMSON D

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/796,757	<b>Applicant(s)</b> WU, YIFENG	
	<b>Examiner</b> Lamson D. Nguyen	<b>Art Unit</b> 2861	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-13, 15-23, 27-28 is/are rejected.
- 7) ☒ Claim(s) 14, 24-26, 29 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/08/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4, 11-13, 15-16, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsubara et al. (6,130,685).

***Matsubara et al. teach a printing method, program storage device, printing system comprising:***

#### **Claims 1, 11, 19, 20:**

- receiving print data defining an arrangement of a first set of image elements within an array of first and second sets of image elements, the first set having a different color characteristic than the second set (figure 4 teaches sets of “image elements” or data Y, M, Cy, and Bk representing different color inks received from host device in figure 3)
- selecting at least one mode for placement of colorant-based representations of the image elements of the first set onto a printing medium based on one or more values corresponding to the percentage of image elements of the first set in at least one of the array and one or

more portions of the array (figure 4 teaches mode of the first scan where an amount of data of each color is to be printed); and

- placing the colorant-based representations onto the printing medium according to the at least one mode selected and in the arrangement defined by the print data (figure 4 teaches scanning to print data of each color)

**Claim 3:**

- wherein selecting at least one mode includes selecting at least one of a direction, a rate, and an order of placing the colorant-based representations of the first set of image elements (figure 4 teaches mode of first scan in direction A)

**Claims 4, 12:**

- wherein receiving includes receiving print data defining an arrangement of a first set of image elements having a color characteristic that is non-white in an array of the first set and a second set of image elements having a color characteristic that is white (figure 4 teaches image data Y 401 comprises non-white data represented by lines squares and white data represented by the white squares)

**Claim 13:**

- wherein the plurality of passes includes a sequential pair of passes configured to deliver the at least one colorant as adjacent swaths of the print medium, and wherein selecting includes selecting one of an equivalent direction and opposing directions for the sequential pair of passes (figures 5-7 teach subsequent scans of passes 2-4 that either scans forward or backward directions)

**Claim 15:**

- a data manipulation portion configured to receive print data defining an arrangement of a first set of image elements within an array of first and second sets of image elements, the first set having a different color characteristic than the second set (figure 4 teaches sets of "image elements" or data Y, M, Cy, and Bk representing different color inks received from host device in figure 3; figure 3 teaches control unit 1201 acting as data manipulation portion receiving data from host device 1212)
- to determine one or more values corresponding to the percentage of image elements of the first set in at least one of the array and one or more portions of the array (figures 4-7 teach printing to be in 4 scans, wherein each scan prints a certain amount of pixels)

- to select a direction for each of a plurality of passes in relation to a print medium based on the one or more values (figures 4-7 teach printing scan directions A and B, representing forward and backward directions)
- a colorant placement portion in communication with the data manipulation portion and including one or more printheads configured to deliver at least one colorant to the print medium as the printheads perform each of the plurality of passes in the direction selected for each pass to create colorant-based representations of the image elements of the first set disposed in the arrangement (figure 3 teaches colorant placement portion or head driver section 1204 connection of control unit 1201 to drive the printheads to print , as well as driver 1202 to direction which directions the printheads will scans as in figures 4-7)

**Claim 16:**

- Wherein the data manipulation portion and the colorant placement portion are integrated in a single printing apparatus (figure 3, as is well-known in the art, control unit 1201 and drivers 1202-1204 form a single printing apparatus)

**Claim 18:**

- wherein the colorant placement portion is configured to fire droplets of the at least one colorant toward the print medium (figures 4-7)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara in view of Lapstun (6665094)

***Matsubara teaches all claimed features of the invention including:***

**Claim 6:**

- selecting an order for placing colorant-based representations of the first set of contone image elements onto a printing medium based on one or more values corresponding to the percentage of image elements of the first set in at one one of the array and one or more portions of the array (figure 4 teaches mode of the first scan where an amount of data of each color is to be printed; figure 4 teaches the order of depositing color inks in the direction of scan direction A)

- placing the colorant-based representations onto the print medium according to the order selected and in the arrangement (figure 4 teaches scanning to print data of each color)

**Claim 8:**

- wherein receiving includes receiving print data defining an arrangement of a first set of image elements having a color characteristic that is non-white in an array of the first set and a second set of image elements having a color characteristic that is white (figure 4 teaches image data Y 401 comprises non-white data represented by lines squares and white data represented by the white squares)

**Claim 9:**

- wherein selecting an order includes selecting at least one direction for travel of one or more printheads (figure 4 teaches had scan direction A for the first scan)

**Claim 10:**

- determining one or more values based on the number of image elements of the first set in one or more of the rows (figures 4-7 teach 4 scans to be done based on print data received of Y, M, Cy, and Bk)



***Matsubara teaches all claimed features of the invention except :***

- (claims 2, 7): receiving print data defining at least a portion of one or more of text, graphics, and photographs
- (claim 5): contone image elements (data) in halftone representations.
- (claim 6): contone image elements

It is well-known in the art to receive print data that represents text, graphics, or photographs (column 5, lines 7-10) and to use contone image in halftone representations as taught by Lapstun (column 34, lines 31-36).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Matsubara to incorporate the teaching of text, graphics, or photographic data and halftone contone image data taught by Lapstun for the purpose of obtaining high quality printing.

Claims 17, 21-23, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara in view of Tajika et al. (6,089,697).

***Matsubara teaches all claimed features of the invention including:***

**Claim 21:**

- scanning in forward and backward directions, receiving print data defining non-white and white pixels (figures 4-7 teach white and non-white squares representing print data), determining one or more values corresponding to the percentage of non-white pixels or white pixels

included in one or more portions of the print data (figures 4-7 teaches amount of print data to be printed in each scan), print data (figures 4-7 teach scanning the printhead to print)

**Claim 22:**

- wherein the print data defines a set of rows in which the non-white pixels and the white pixels are disposed, and wherein determining includes determining one or more values corresponding to the percentage of non-white pixels or white pixels (figures 4-7 teach rows of white and non-white squares representing printing pixels)

**Claim 23:**

- determining values corresponding to the percentage of non-white pixels or white pixels in each row of contiguous set of rows (figures 4-7 teach amount of each colors Y, M, Cy, and Bk to be printed in each scan)

**Claim 27:**

- wherein printing includes forming the non-white pixels by colorant placement and forming each of the white pixels without colorant placements (figures 4-7 teach the white squares representing white pixels which means no pixels are to be printed, hence no use of inks is involved)

**Claim 28:**

- wherein the white pixels correspond to null data elements in the print data (figures 4-7 teach white squares representing non-printed pixels or null data)

***However, Matsubara does not teach:***

- (claims 17, 21) two different modes: unilateral and bi-lateral directions to be selected.

It is well-known in the art that a selection of either bi-lateral or unilateral mode to be selected, as taught by Tajika et al (figure 24). Tajika also teaches different printing modes according to dpi threshold. Specifically,

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Matsubara to incorporate the teaching of unilateral or bilateral modes taught by Tajika et al for the purpose of improving printability.


***Allowable Subject Matter***

Claims 14, 24-26, 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D. Nguyen whose telephone number is 571-272-2259. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on 571-272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
LAMSON NGUYEN  
PRIMARY EXAMINER  
06/16/08